IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No.	:	Unknown
Applicant	:	Friedrich BOECKING
Filed	:	June 8, 2005
Based on	:	PCT/EP 2004/050785
Title	:	Fuel Injector For Internal Combustion Engines
Docket No.	:	R.304748
Customer No.	:	02119

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Date: June 8, 2005

INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR 1.97(b), AND EXPLANATION OF THE RELEVANCE OF THE CITED PRIOR ART

Sir:

The undersigned hereby requests that the prior art cited on the attached prior art statement be placed of record in the application file and be considered by the examiner.

This citation of prior art is made under 37 CFR 1.97(b), since it is being filed within three months of the filing date and before the mailing of a first Office action.

The relevance of the prior art cited on the attached form PTO/SB/08a is as follows:

Appl. No. Unknown
IDS filed June 8, 2005
Prior to first Office Action

US 2003/0052203 A1

This patent application teaches a fuel injector valve for fuel injection systems of internal combustion engines. The valve is comprised of an actuator which cooperates with a valve needle (34, 51, 73). A first valve closure member (35, 52) is arranged on the valve needle (34, 51, 73). This valve closure member cooperates with a first valve seat surface (33, 53) on a valve body (32, 50) forming a first sealing seat (36, 54). A second valve closure member (38, 55, 75) cooperates with a second valve seat surface (40, 56) in the valve seat body (32, 50) forming a second sealing seat (41, 57). The valve needle (34, 51, 73), or the first valve closure member (35, 52), has a limit stop, against which, after a partial stroke (h1) of the valve needle (34, 51, 73), a counter limit stop of the second valve closure member (38, 55, 75) strikes. This lifts the second valve closure member (38, 55, 75) from the second sealing seat (41, 57) in response to a further stroke of the valve needle (34, 51, 73).

EP 0 978 649 A2

This patent teaches a nozzle body (12) with a tip (10) with two axially separate rows of injection holes (14,16). A nozzle needle (20) is axially movable in the nozzle body, whereby a conical surface (22) on the needle tip selectively frees and blocks the fuel path to the injection holes. A protruding insertion body (30) on the needle tip moves axially with respect to the needle. In the closed state the conical surface is in contact with the first, upper row (14) of injection holes on the inside of the tip and a wedge body (32) is in contact with the inside of the tip between the rows of holes. After raising the conical surface to free the

fuel path to the first row the wedge body frees the fuel path to the second, lower row (16) of holes.

WO 02/18779 A1

This patent teaches a method for controlling the opening and closing process of the nozzle needle (7) of an injection valve, comprising a control valve (3). A rapid operation of the nozzle needle (7) with concomitant low leakage may be achieved. Pressure in the control chamber (7) is generated which acts upon the nozzle needle (7) in addition to the pre-tensioning of the spring (10) to close the nozzle needle (7). For opening the nozzle needle (7), the additional pressure acting on the nozzle needle (7) is released.

DE 41 15 457 A1

This patent teaches an injection nozzle for internal combustion engines that matches injection hole cross-sections to the actual running conditions of the engine. The nozzle incorporates a hollow needle controlling a first group of injection holes. Inside the hollow needle (6) a fitted concentric inner needle (17) is loaded in the direction of its closure position by a second spring (18). In order to match the injection cross-section to the actual engine running state, a shoulder (22) is provided on the hollow needle (6) which works in conjunction with a heel formation (21) on the inner needle (17). In the closure position of both needles, a clearance is provided between the shoulder and the heel formation, and an adjustable stop is available for one of the two needles. In one position, the stop permits a movement (h) of the needle which is less than the clearance between the shoulder and the

heel formation. In a further position of the stop, the needle movement is greater than the clearance between shoulder and heel formation.

DE 101 18 699 A1

This patent teaches a fuel injection device (10) for internal combustion engines, comprising an elongated housing (12) with a closed injection end (28). A recess (34) extends within the housing (12) in the longitudinal direction and can be linked with a fuel inlet (20). At least two axially spaced apart outlet openings (30, 32) are provided on the injection end (28). At least two coaxially and axially movable valve elements (40, 42) are disposed in the recess (34) and cooperate with valve seats in the area of the outlet openings (30, 32). The valve elements (40, 42) comprise a driving connection (52, 72) which allows the one valve element (40; 42), when traveling a certain path (S1), to axially contact the other valve element (42; 40), thereby taking it along. This allows for a fuel injection device (10) that is as simple and small as possible in design.

Examination of this application is respectfully requested.

Respectfully submitted,

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PTO/SB/08a '(08-03)
Approved for use through 07/31/2006. OMB 0651-0031
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Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

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Complete if Known	
Application Number	JC17 Rec'd PCT/PTO 08 JUN 2005 10/538031
Filing Date	
First Named Inventor	Friedrich Boecking
Art Unit	
Examiner Name	
Attorney Docket Number	R.304748

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number: Number	Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US- 2003/0052203	A1	03-20-2003	Stefan Arndt et al.	
		US-				
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FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document: Office[3]	Number[4]	Kind[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]
		EP	0 978 649	A2	02-09-2000	Hakan Yalcin		
		WO	02/18779	A1	03-07-2002	Wolfgang Bloching et al.		
		DE	41 15 457	A1	11-21-1991	Denis Walter Gill et al.		
		DE	101 18 699	A1	10-31-2002	Detlev Potz et al.		

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] Applicant's unique citation designation number (optional). [2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. [6] Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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